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UNIVERSITY OF PENNSYLVANIA

**INDUSTRIAL ACCIDENTS
AND
WORKMEN'S COMPENSATION**

BY
RALPH HARRUB BLANCHARD

A THESIS

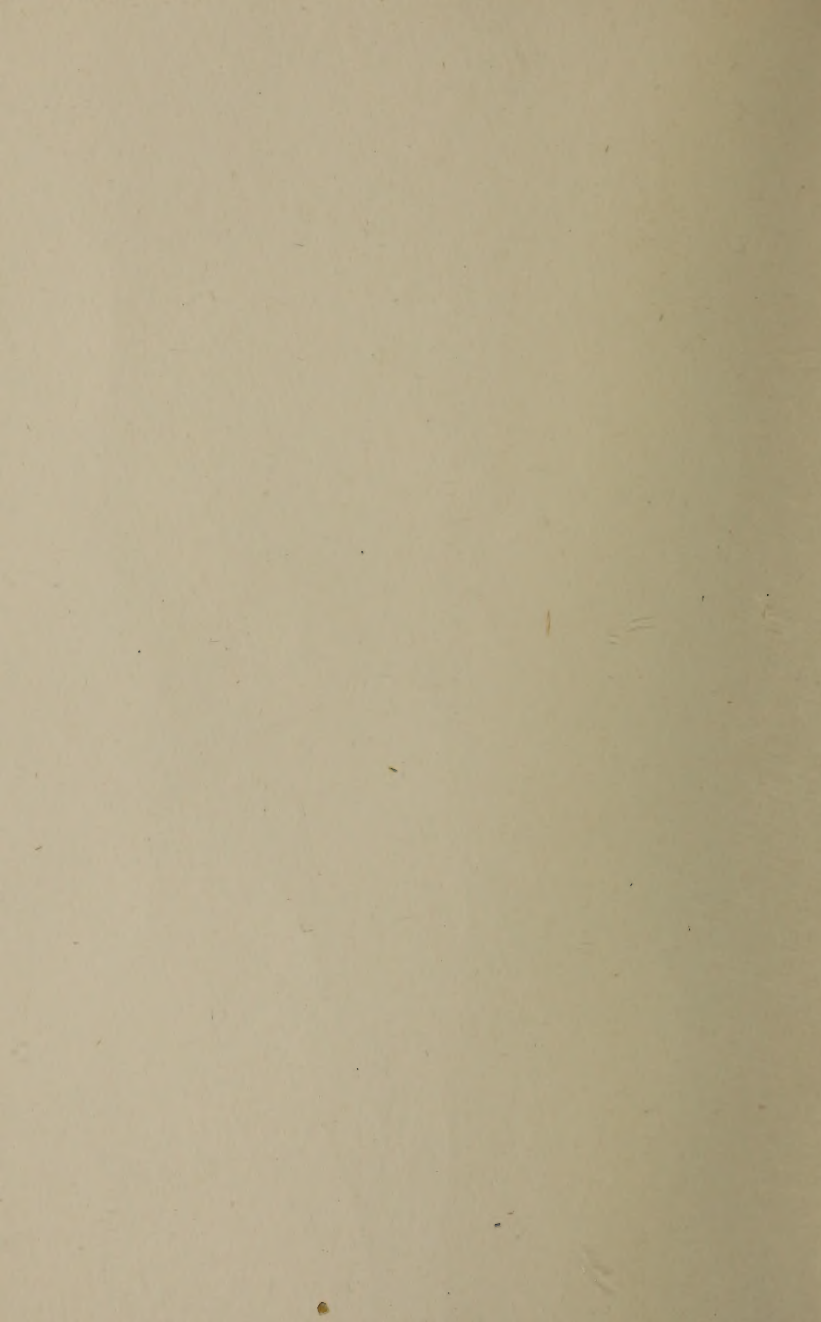
Presented to the Faculty of the Graduate School in Partial Fulfillment
of the Requirements for the Degree of Doctor of Philosophy



D. APPLETON AND COMPANY
NEW YORK **LONDON**

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PART I

INDUSTRIAL ACCIDENTS AND THEIR
PREVENTION

CHAPTER I

INDUSTRIAL ACCIDENTS

Industrial accidents, those accidents occurring to an employee during his working hours, create the problems of which the systems of Employers' Liability and Workmen's Compensation are attempted solutions.

The Extent of Industrial Accidents.—It has been estimated by Dr. Frederick L. Hoffman that there occurred in the United States, during the year 1913, 700,000 industrial accidents, involving a disability period of over four weeks and 25,000 which terminated fatally.¹ In the metal and miscellaneous mineral mines of the United States the statistics of accidents for the year 1913 are as follows: ²

	Number	Per 1000 employed
Fatally injured.....	683	3.54
Seriously injured (loss of 20 days or more)	5,890	30.50
Slightly injured (loss of over one and less than 20 days).....	27,081	140.25

The mining industry is of an extremely hazardous nature and the accident frequency among its employees

¹ *Industrial Accident Statistics*, p. 6.

² U. S. Bureau of Mines, *Technical Paper 94*, p. 27.

is higher than in any other. In two other dangerous industries for which we have statistics for the entire country the following tables have been compiled:

ACCIDENTS TO EMPLOYEES OF STEAM RAILWAYS YEAR
ENDING JUNE 30, 1915³

	Number	Per 1000 employed
Killed	2,152	1.49
Injured	138,092	88.64

ACCIDENTS IN 155 IRON AND STEEL PLANTS YEAR END-
ING JUNE 30, 1910⁴

	Number	Per 1000 300- day workers
Fatal	274	1.86
Permanent injury.....	400	2.72
Temporary disability (one day and over).....	35,364	240.6
Total	36,038	245.2

Unfortunately we have no statistics to show the number of industrial accidents throughout the United States in other industries but certain of the individual states have gathered valuable data from which the following table is cited as especially significant:

³ Interstate Commerce Commission, *Accident Bulletin No. 56*, p. 23.

⁴ *Report on Conditions of Employment in the Iron and Steel Industry in the United States*, Vol. IV, p. 43.

INDUSTRIAL ACCIDENTS IN MASSACHUSETTS FOR THE
YEAR ENDING JUNE 30, 1914⁵

Fatal accidents.....	509
Non-fatal accidents.....	96,382
Total	96,891
Rates per 1000 employees:	
Automobile factories.....	287.
Box makers (wood).....	137.
Car and railroad shops.....	100.
Cotton mills.....	67.
Boots and shoes.....	54.
Clothing makers.....	22.
Average for 25 selected industries.....	102.85

Further citations would only serve to emphasize the fact which the above figures clearly indicate, that industrial accidents play no inconsiderable part in the conduct of modern business, and are sufficiently numerous to warrant careful study with a view to eliminating them or mitigating their consequences. Such a study should proceed first in the direction of a determination of the economic loss occasioned by them. Physical suffering and anxiety must also be considered but these consequences are not capable of measurement and therefore cannot be made the subject of a scientific study. Having determined the economic loss we will be in a position to judge the magnitude of the problem and to adopt measures for its solution which are commensurate with its importance.

The Results of Industrial Accidents.—The occur-

⁵ *Second Annual Report of the Industrial Accident Board of Massachusetts*, Boston, 1915, pp. 29 and 32.

rence of these injuries is directly detrimental to the employee, the employer, and to society.

The most obvious loss is borne by the working class, the employee and his dependents, and consists of several items; loss of time, loss of wages, and medical and surgical expenses. In 130 steel plants during the two years ending June 30, 1910, the average time lost per injury was 12.9 days, and the average time lost per 300 day worker for the same period in plants and departments where data were available was estimated at 3.5 days.⁶ Assuming an average wage of \$2.00 per day the wage loss per injury was \$25.80 and per worker, \$7.00, in addition to medical and surgical expenses. These figures are based on a total of 11,702 accidents and 150,714 days lost; involving, at the \$2.00 wage, a total loss of \$301,428 in wages, to which should be added payments to physicians and hospitals. In Massachusetts the duration of total disability has been analyzed for the 96,382 non-fatal accidents mentioned above with the following results:

Duration of Total Disability	No. of Cases	% of Total
1 week and under.....	24,301	25.21
1 to 2 weeks.....	9,755	10.12
2 to 4 weeks.....	9,221	9.57
4 to 8 weeks.....	7,065	7.33
8 to 13 weeks.....	2,549	2.64
13 weeks to 6 months.....	1,491	1.55
6 months to 51 weeks.....	438	.45
52 weeks and over.....	293	.30
Disability of less than one day....	41,269	42.82

⁶ *Report on Iron and Steel Industry.* Vol. IV. pp. 53-56.

The wages of the workman who suffered the above injuries have been analyzed as follows:

Wage Groups	No. of Cases	% of Total	Wage Groups	No. of Cases	% of Total
\$6 and under....	5,171	5.37	\$16 01—\$17 00...	4,085	4.24
6 01—\$7 00.....	3,268	3.39	17 01— 18 00...	5,029	5.22
7 01— 8 00.....	5,468	5.67	18 01— 19 00...	1,612	1.67
8 01— 9 00.....	7,941	8.24	19 01— 20 00...	3,194	3.31
9 01—10 00.....	7,569	7.85	20 01— 21 00...	1,807	1.87
10 01—11 00.....	8,471	8.79	21 01— 22 00...	1,022	1.06
11 01—12 00.....	12,668	13.14	22 01— 23 00...	496	.51
12 01—13 00.....	4,670	4.85	23 01— 24 00...	842	.87
13 01—14 00.....	8,075	8.38	24 01— 25 00...	1,272	1.32
14 01—15 00.....	7,782	8.07	Over \$25.....	2,148	2.23
15 01—16 00.....	3,792	3.93			
			Total	96,382	

All of the above figures apply only to non-fatal accidents which, while they are much more numerous, cause, in the average case, much less economic loss than do fatal accidents, for the majority of workmen have one or more persons dependent in whole or in part upon their wages for support. Of the 509 fatal accidents in Massachusetts 422 involved dependency, 942 persons were totally dependent in 331 cases, and 144 were partially dependent in 91 cases; in 87 cases there were no dependents.

The relative importance of the losses from various types of disability may be indicated in a very general way by a table drawn up by the actuaries of the Industrial Insurance Department of the state of Washington. Assuming that the average work year consisted of 300 days and that the average life expectancy was twenty-five years, this table was compiled for the year ending June 30, 1913.⁷

⁷ *Second Annual Report of the Industrial Insurance Department*, Olympia, Wash., 1914, p. 102.

	Work years lost
Fatal Accidents.....	8,225.
Temporary Total Disability.....	1,135.8
Permanent Partial Disability.....	4,131.2
Permanent Total Disability.....	325.
	<hr/>
	13,817.

Volumes might be filled with statistics to show the magnitude of the problem from the point of view of the workingman. He is hard-pressed to meet the necessary expenses of existence and is entirely incapable of providing adequately for himself and his dependents in case an accident removes his source of income. Unquestionably, were his the only loss from industrial accidents, there would be an overwhelming need for investigation and the application of remedial measures.

But the employer is also affected. It is to his interest to have his business proceed efficiently and without interruption; if a workman is injured his place must be filled by finding a new man who will often require considerable time to become accustomed to his work. Damage suits are a frequent result of accidents and these cause friction between employer and employed and involve large expense in the defense of claims on the part of the former. If there were no industrial accidents production would proceed on a more efficient basis and the attention given to the consequences could be expended on other problems.

Thus far the effect of industrial accidents on those most vitally and directly interested has been examined, but if social action is to be demanded people in gen-

eral must be informed of their interest in the problem before us. Society loses, first from the direct decrease in productivity, due both to the cessation of productive effort on the part of the injured man and to the lowering of the general efficiency of industry. In addition, the injured man and his dependents must be cared for, with a consequent lowering of standards which reacts further to decrease general productivity. If the workman sues his employer for damages the expensive machinery of the law is set in motion and another heavy item of loss is added, for cases of this sort occupy a large share of the court's time where workmen's compensation laws are not yet in force.

Responsibility.—Having investigated the nature and extent of industrial accidents the next step logically is to determine where the responsibility for their occurrence rests. With a knowledge of this, we can more readily attack the causes, and more justly assess the cost of caring for the injured. Many accidents can be traced to a lack of care or to actual wrongdoing on the part of some person, employer or employee, but by far the greatest share of casualties is due to the hazard of industry. By the hazard of industry (or "trade risk") is meant that hazard which accounts for accidents not due to the personal fault of any individual. They are a necessary result of the existing methods of conducting business, and responsibility for their occurrence should be assigned to the industry. That this factor is of very real importance in determining accident rates is shown by an examination of comparative tables showing the rates for different industries over a series of years. It is found that the

variation as between industries is approximately constant; for example, mining and steel work will show a high accident frequency, while the textile industry and boot and shoe manufacturing will always have a much lower rate.

Various attempts have been made to analyze reports of accidents in order to determine the personal and industrial factors. The results should be accepted as only approximately correct since so many elements enter into each case that it is impossible to make rigid classifications. A careful statistical investigation in a large iron and steel plant covering a period of six years discloses the following figures:⁸

Accidents due to	%
Hazard of Industry.....	60
Negligence of worker.....	7
Negligence of fellow worker.....	6
Negligence of employer.....	4
Not disclosed by the record.....	23
	<hr/>
	100

In different departments of the plant the percentage of accidents due to the hazard of industry varied from 52 to 69 per cent.

Statistics compiled for three years in the State of Washington are given below:⁹

⁸ *Report on Iron and Steel Industry*. Vol. IV., pp. 174-5.

⁹ *Second Annual Report of the Industrial Insurance Department*. p. 97.

Fourth Annual Report of the Industrial Insurance Department. p. 94.

Accidents due to	1913	1914	1915
Risk of Trade.....	69.0%	81.7%	89.0%
Workmen's fault.....	7.8	7.2	5.3
Fellow servant's fault...	2.4	3.2	1.5
Employer's fault.....	.7	.2	.1
Foreman's fault.....	.1	.1	.05
Third person's fault.....	.2	.2	.15
Facts not ascertainable..	19.8	7.4	3.9
	<hr/> 100%	<hr/> 100%	<hr/> 100%

Everywhere the testimony is the same; the hazard of industry is responsible for a large percentage of industrial accidents and, with the improvement of safety devices and greater care on the part of both the workmen and his employer, we may expect to see an increase in this percentage.

It is occasionally argued that the extra hazard involved in a given trade is offset by larger wages, but no definite relation between hazard and wages has ever been shown to exist. High wages are usually due to the limited supply of skilled workmen and numerous examples of a low wage scale in extremely dangerous industries are familiar to everyone.

Accident Statistics.—The study of industrial accidents in the United States has been greatly hampered by a lack of reliable and adequate data. Besides, the data of individual states have not been comparable because of variation in thoroughness and methods of classification. The adoption of a uniform and complete accident-reporting schedule is strongly to be advised since it is only by such means that we can se-

cure the facts necessary for a practical consideration of the problem.

The Problem of Industrial Accidents.—With the above facts before us we are in a position to define clearly the problem involved in industrial accidents. We must find methods of eliminating them or of making their consequences less burdensome, always remembering that any social cost is justified which results in a net social saving. A consideration of these methods will occupy the following chapters.

References at end of Chapter III.

CHAPTER II

THE PREVENTION OF INDUSTRIAL ACCIDENTS

The most logical method of eliminating the suffering and economic loss due to industrial accidents is to prevent their occurrence; with the removal of the cause the effect will disappear. But the complete elimination of industrial accidents seems to be impossible if industry is to continue with human beings as a factor in production. Accidents must be divided into two classes, the preventable and the unpreventable, and every reasonable effort should be made to anticipate and eliminate those in the first class. The burden of those which remain should be lightened in so far as possible and should be justly distributed among the responsible parties.

The achievement of industrial safety through prevention of accidents, while not a new idea, has been the subject of active endeavor only during the last decade; in fact, with the greater part of our industrial population, safety work is a development of the last two or three years. In the past, lack of accurate knowledge, currency of individualistic ideals, and generally wasteful methods of production have precluded attention to the problem. Industrial accidents have been regarded as an unfortunate but not particularly important incident of modern production. Now, with

the growth of the conservation idea, the development of a knowledge of consequences through statistical studies, and direct financial pressure on employers through laws compelling the payment of compensation to workmen, we find rapidly increasing and effective interest in the subject.

Agencies of Accident Prevention.—The State should be the primary force in the prevention of accidents since it represents all classes and is in a position to exercise compulsion. That our governments have been far behind Europe in safety activity has been due largely to ignorance of the possibilities of such work and to absence of the demand for it because of our less highly concentrated population. One of the first examples of state interference in the cause of safety is the Safety Appliance Law passed by the Federal Government in 1893, aimed specifically at accidents due to the dangerous methods of coupling cars then in vogue on interstate railroads. This law has since been considerably extended to cover a wider range of railroad work. The individual states have passed, from time to time, laws for the elimination of specific unsafe practices and for the general improvement of conditions in dangerous trades, but their enforcement has usually been lax and productive of little good.

As a result, however, of steadily growing interest during the last six or seven years legislatures, backed by public demand, are enacting more effective statutes, in some cases independent of a Workmen's Compensation Act, but more often supplementary thereto. The most important feature of these later enactments has been the creation of expert commissions for the

collection of information and the enforcement of the law. These commissions are usually empowered to make inspections and require the installation of safety devices, and make annual reports of the progress of their work. More significant still is the educational work which they are carrying on through the publication of pamphlets, the promulgation of safety standards, public exhibitions and lectures, safety museums and libraries, and conferences with individual employers.

The latest development of the governmental program is the adoption of safety as a subject of instruction in the public schools. New Jersey passed a law in 1913 requiring courses to be installed and other states are becoming interested in this branch of the work. Capably administered, this should be an effective method of reducing accidents. Its idea is to make accident prevention a part of the every-day consciousness of the population and the accomplishment of this end is of fundamental importance.

Employers, after years of ignorance and apathy, are fast becoming awakened to the humanitarian and financial gains arising from accident prevention and are expending an immense amount of thought and money to decrease the accident hazard in their plants. The United States Steel Corporation was a pioneer in safety work and has developed its organization and methods to a very high pitch of efficiency. Leading corporations in other lines have also made great advances in the direction of industrial safety and it is only a question of time before every corporation of any size will recognize accident prevention as one of

the most important phases of its activity. Manufacturers of machinery are responding to the demand, and dangerous machines are now carrying guards as regular equipment.¹ The manufacture of safety devices is becoming an independent industry and inventors are constantly working on new ideas for more efficient protection.

One of the greatest aids to the employer in the solution of safety problems is the insurance company. These companies, on the payment of a stipulated premium, assume the liability of the employer to pay damages or compensation to his employees on account of accidents, and one of their chief inducements is the offer of expert advice on safety work whereby the employer may not only reduce his accidents but may also secure substantial reductions in the rate of premium. Competition in this service has developed inspection departments which are of very real economic value. In addition to personal inspection and advice, pamphlets dealing with safety are published, warning signs are furnished, and some companies issue small volumes which are practically text-books of accident prevention.

Two coöperative enterprises for improving safety conditions merit especial mention: the American Museum of Safety and the National Safety Council. These organizations are supported by membership fees and contributions of industrial corporations and public-minded associations and individuals.

¹ One industrial corporation makes a practice, whenever a machine comes to them insufficiently protected, of adding the necessary guards and deducting the cost from the bill for the machine.

The American Museum of Safety, in New York City, is a clearing-house and exhibition place for safety methods and appliances and is modeled after the great safety museums of Germany and other European countries. Safety devices and models have been collected and are displayed for the inspection of anyone interested. A library is also maintained and educational work is carried on through illustrated lectures and the distribution of pamphlets.²

The National Safety Council, with headquarters in Chicago, is the parent organization of large numbers of local councils located in the principal cities. Its chief features are weekly bulletins of statistics and safety illustrations, an information bureau for members, and annual Safety Congresses. These congresses attract safety experts from every industry and the papers and informal discussions are of great value.

Thus far the function of the workman in the prevention of accidents has not been mentioned, though he is an all-important factor in the success of any plan for the promotion of industrial safety. The work of employers and the state can be made effective only through his intelligent and active coöperation and hence all safety organizations are built around the fundamental idea of awakening the interest of the employee in his own welfare. Initiative and administration must come from the employing class, but the greater part of the reduction in accident rates is due directly to the care and efforts of the workers.

Methods of Accident Prevention.—The develop-

² Massachusetts and California have Museums of Safety maintained by the State.

ment of efficient methods for the prevention of accidents must rest on an accurate knowledge of causes. Hence a prerequisite to the establishment of a safety organization and the installation of preventive appliances is a careful study of causes and their relative significance. For example, Illinois statistics show that "falling objects" were responsible for 19 per cent of the accidents occurring during the six months ending December 31, 1913, and that, in each class of industry, the number attributable to this cause far exceeded that due to any other. These facts would indicate the necessity of giving primary emphasis to the prevention of such accidents and would probably warrant the expenditure of a relatively large amount of attention and money for that purpose. A further study might show that these accidents give rise to comparatively short periods of disability and that another less numerous class results in greater total loss. In that case the emphasis would be shifted. This is but a suggestion of the need for careful scientific consideration of every element of the problem as a basis for effective work.

The simplest method of protecting workmen is the use of mechanical guards to prevent falls and contact with dangerous machinery and to catch flying particles, and tools or materials which may have been dropped. Familiar examples are covers for gears and belting, railings on elevated runways, wire screens before metal chipping machines and strips of metal or wood on the edges of scaffolding. Machines are often redesigned to render their operation safer; devices for stopping machinery are applied and the parts

are made more accessible for cleaning and oiling. Arrangements are also made to prevent setting machinery in motion while men are engaged in repair work, and methods of lighting are used which give the employee the clearest possible view of his work. Warning signs, designed with a view to compelling attention, are used to remind the employee of the presence of danger. Besides signs to guard specific danger zones, large placards and electric signs are placed in prominent positions to keep the idea of "safety first" constantly in the mind of the employee.³

The success of a program of accident prevention should be measured in terms of the consequences of accidents as well as of accident frequency, and every effort should be made to reduce the period of disability due to them. "First aid" is an essential feature of a comprehensive scheme and the larger plants now have their own hospitals with physicians who attend to all injuries free of charge. It is usually required that every injury, no matter how slight, be submitted for examination. Smaller plants have visiting physicians or make arrangements for treatment at some general hospital. This treatment often substitutes a loss of a few minutes for a protracted period of disability, as many apparently slight injuries develop into serious cases of infection if not attended to at the outset.

³ Illustrations of various methods of accident prevention by use of mechanical guards are given on pages 20-23.

For the illustrations of methods of accident prevention used in this chapter the author is indebted to the United States Steel Corporation, with the exception of Illustration III, which was furnished by the Benjamin Electric Mfg. Co.

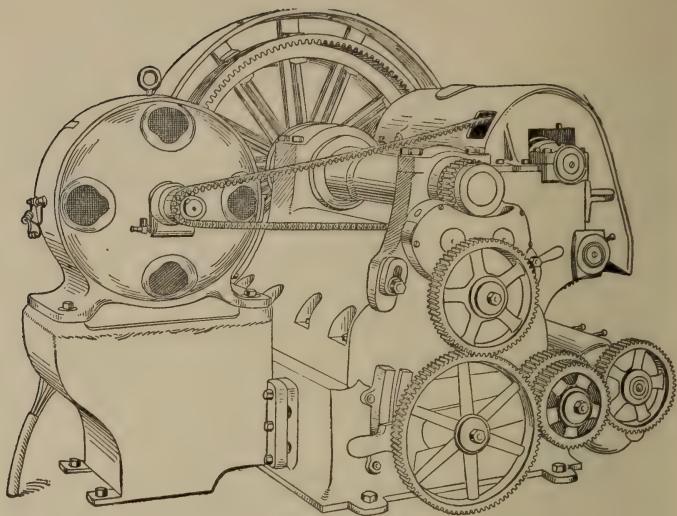


ILLUSTRATION I
Lathe Gears Unguarded.

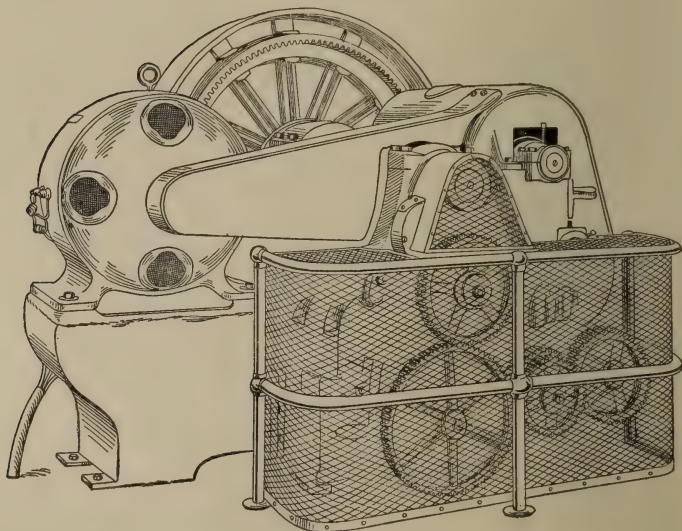


ILLUSTRATION II
Lathe Gears Guarded.

Carelessness and improper methods of work give rise to many avoidable injuries. These conditions can be corrected only through educational methods. Bulletins are posted wherever the men are likely to read them, magazines are issued in which safety hints are

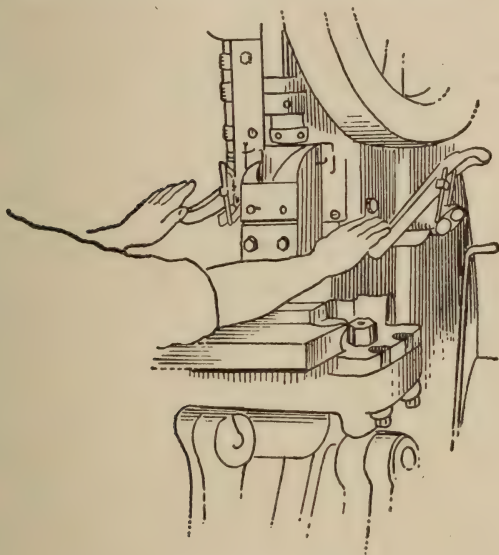


ILLUSTRATION III

Stamping Press Redesigned to Require Placing Both Hands on Levers in Order to Operate Machine.

combined with other topics of general interest. Stereopticon lectures are given by safety experts and in some cases the men are paid to attend. To supplement these general means, individual instruction is given, rule books are distributed, and examinations set, with prizes for correct answers. In every possible way an attempt is made to point out to the workman that it is

to his overwhelming advantage to assist in safety work.

As in all extensive undertakings involving the co-operation of a large number of individuals, organization is the prime essential for the successful operation of a safety system. The proper development of an organization requires careful adaptation of its units to each special branch of work and coördination of the units in a centralized and harmonious scheme. The

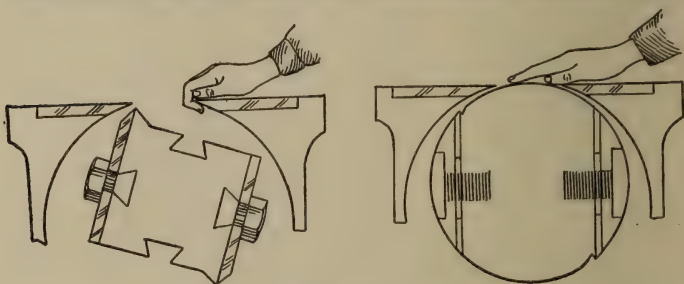


ILLUSTRATION IV

Square and Circular Knife Holders.

organization of the United States Steel Corporation may be taken as an example of the successful solution of this problem. In 1906 a Committee of Safety was appointed from among the officials of the subsidiary companies and, since that date, this committee has been in supreme charge of the safety work of the Corporation. It considers safety methods and appliances, conducts inspections of individual companies, studies serious accidents, and makes recommendations for improvements. As a clearing house for ideas and experience from every section of the Corporation the Bureau of Safety, Sanitation, and Welfare has been

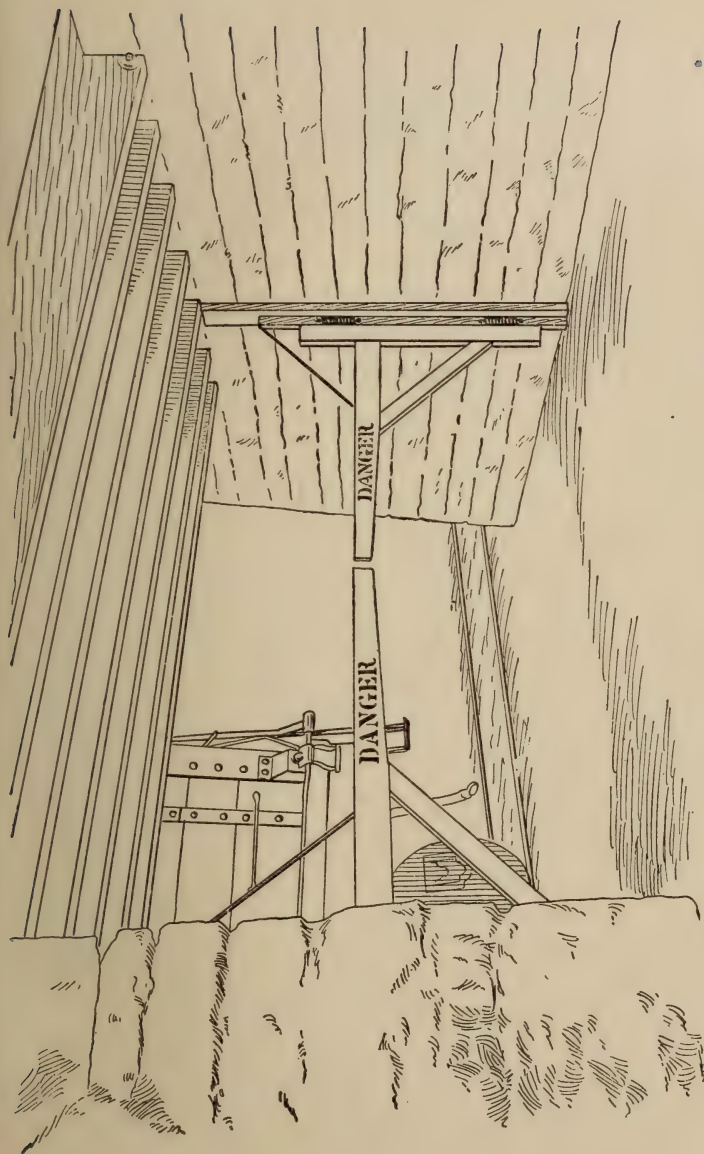


ILLUSTRATION V

A Swinging Safety Gate for Use as a Warning in a Passage Opening on to a Railroad Track or Other Dangerous Place.

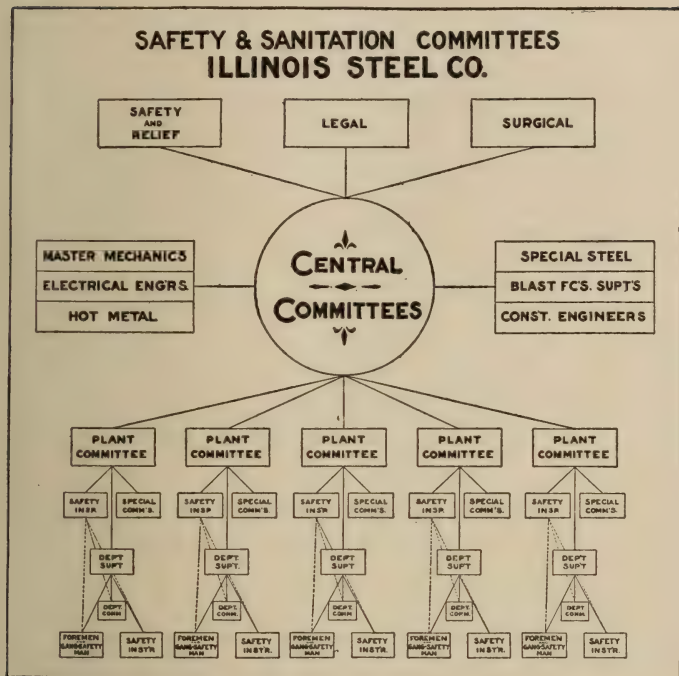
established. This bureau has headquarters in New York City and is in charge of a general manager whose entire time is given to the collection of statistics and photographs and to the coördination and administration of the safety, sanitation, and welfare work of the Corporation.

Each subsidiary company has its Central Committee of Safety composed of representatives from the department of safety and relief, the legal and the surgical departments, and from the various plants.⁴ To assist this committee on special problems subcommittees of master mechanics, electrical engineers, blast furnace superintendents, and others, are consulted. Each plant has its own committee, under which are the safety inspector, special committees, department committees, a safety instructor, and committees of foremen and workmen. Each of these units has in charge the work for which it is best adapted and each is connected with the central committee through an unbroken line of responsibility. Frequent meetings are held, inspections are made, and recommendations for improvements are considered, reports on all of these activities being made to the superior committees which take final action.⁵

Although no one of the methods of accident prevention outlined should be neglected, they are not all of equal importance in their results. Mere safeguarding of machines can accomplish little without education

⁴ The organization of the Illinois Steel Co. will be treated as typical of the methods in vogue in all subsidiary companies.

⁵ For a graphic outline of this organization see the diagram on the opposite page.



of employees and the successful carrying out of any scheme depends largely on the organization behind it. Robert J. Young, Manager of the Department of Safety and Relief of the Illinois Steel Company, has made the following estimate of the relative efficiency of the several methods:

Organization	55%
Attitude and personal work of those in authority	30%
Safety Committees.....	20%
Inspections (not by committees).....	5%

Education	25%
Instruction to employees.....	12%
Bonuses, prizes, etc.....	8%
Talks by superintendents, foremen, and others	3%
Signs	2%
Safeguarding	20%
Safety devices.....	12%
Lighting	5%
Cleanliness and order.....	3%

Any such estimate is, of course, not final, but serves as an indication of the relative importance to be attached to various activities in connection with safety work.

Occupational Diseases.—The problem of diseases arising from a workman's occupation is a phase of industrial hazard which has been given less attention than the problem of violent accidents. While less spectacular it is worthy of careful study, and efforts for prevention should take the same direction, with the emphasis on medical care and the prevention of infection.

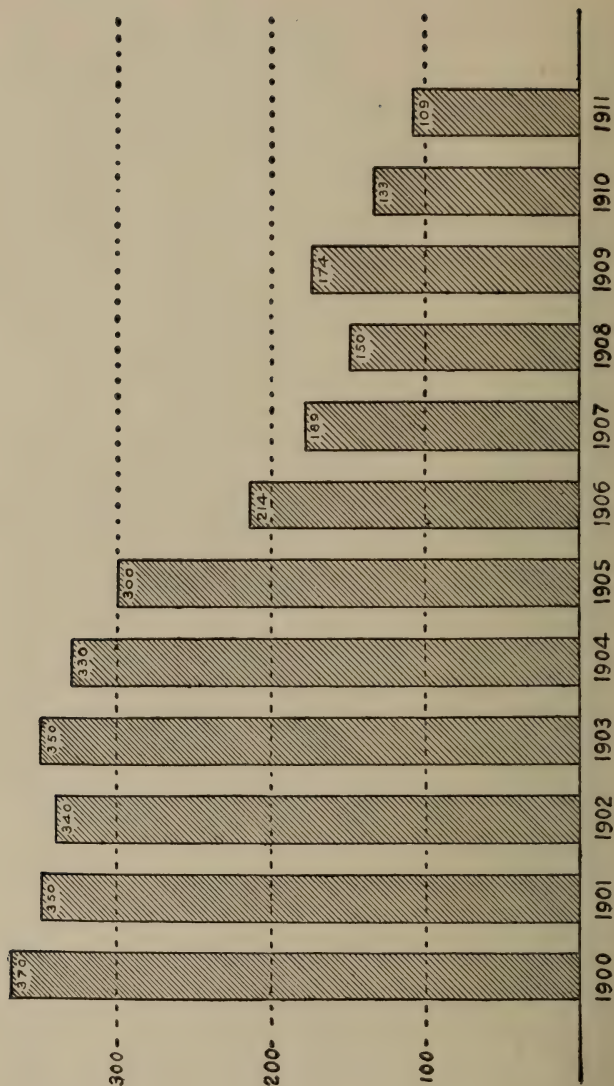
References at end of Chapter III.

CHAPTER III

THE RESULTS OF ACCIDENT PREVENTION

Since the aim of accident prevention is reduction of the losses occasioned by industrial accidents, its results should be measured in terms of saving to those who have experienced such losses. Society is benefited by an increase in general productiveness and a decrease in the expense of caring for the injured and their dependents and of hearing damage suits. The employer gains through increased efficiency due to avoidance of friction and greater permanence of his labor force, as well as through lessened expense for insurance or for defending damage suits and paying claims. The employee receives more wages, loses less time, and both he and his dependents avoid suffering and privation. A considerable body of figures exists showing reduced accident frequency and consequent economic saving due directly to organized accident prevention.

Reduction in Accident Frequency.—Reduction in accident frequency is the most immediate and striking result of safety work. A careful record of the disabling injuries occurring in a large steel plant from 1900 to 1911 shows the effect of a developing safety program. These accidents were reduced from 370 per one thousand 300-day workers in 1900 to 109 per



Rates of Disabling Injuries Per 1,000 300-Day Workers in a Large Steel Plant, by Years, 1900 to 1911.

one thousand in 1911, a decrease of over 70 per cent.¹

The diagram on page 28 shows this experience by years. In connection with this diagram the records for the years 1906 and 1909 are particularly significant. "It may be stated that the year 1906 represented a period of thorough reorganization and safeguarding throughout the machine shops and in connection with other mechanical operations and that the accident rate shows a definite response to these efforts."² "Increased output accompanied by 'speeding up' the workmen always increases the danger. The year 1909 was a 'speeding up' year. It was also a year of employment of many new workmen. Its accident rate reflects these conditions."³

In this same investigation a study was made of two plants having extreme conditions as to safety systems. "Plant A stands high on the list of those that have undertaken successfully safety activities. Plant X, on the other hand, is among those which may be said to have done almost nothing in this direction." During 1910 Plant A showed an accident rate of 180 per one thousand 300-day workers, while Plant X had a rate of 508, nearly three times as great.⁴ Another study, in which sixteen plants were classified according to the development of their safety systems, showed the following results:⁵

¹ *Report on the Iron and Steel Industry*, Vol. IV., p. 118.

² *Ibid*, p. 120.

³ *Ibid*, p. 121.

⁴ *Ibid*, p. 59.

⁵ *Ibid*, p. 43 ff.

	Accident Rates per 1000 300- day workers.
Class A (System well developed) ⁶	167.1
Class B (System in process of development) ..	272.4
Class C (System not developed).....	507.9

Further notable examples of reduction in accident rates through safety work are given in the following table:⁷

American Smelting & Refining Company.....	24%
Bucyrus Company.....	65%
Cadillac Motor Company.....	69%
Commonwealth Edison Company.....	40%
Commonwealth Steel Company.....	69%
Corn Products Refining Company.....	37%
Eastman Kodak Company.....	78%
Fairbanks-Morse Mfg. Company.....	72%
George Cutter Company.....	43%
Harrison Bros. & Company, Inc.....	75%
Illinois Steel Company.....	85%
Inland Steel Company.....	35%
International Harvester Company.....	88%

⁶ "The essentials of a safety system likely to prove effective may be summarized as follows. In plants of Class A all the factors specified are present:

1. Safeguarding by signs, warnings and mechanical contrivances.
2. Adequate safety inspection.
3. Safety committees of superintendents and foremen.
4. Safety committees of workmen.
5. Emergency and hospital care of the injured.
6. A compensation system.
7. Provision for the permanently disabled."

⁷ These figures are printed through the courtesy of The American Museum of Safety.

Jones & Laughlin Steel Company.....	78%
A. J. Lindemann & Hoverson Company.....	62%
Milwaukee Coke & Gas Company.....	83%
Neenah Paper Company.....	83%
Packard Motor Car Company.....	72%
The Pullman Company.....	46%
Raritan Copper Works.....	22%
Rochester Railway & Light Company.....	33%
United States Steel Corporation.....	41%

(The reduction of the accident rate is, to a certain extent, cumulative since continuity of employment tends to a further reduction of the rate. A new man, employed because of the incapacity of the injured employee, is much more subject to accidents than one who has worked continuously.)

Reduction in Loss of Time and Wages.—From an economic point of view the chief index of loss from accidents is the loss of time. In a large steel plant, employing 6,624 men the total time lost was reduced from 22,963 days in 1905 to 18,002 days in 1910, a saving of 4,961 days through the adoption of safety measures. The average number of days lost per 300-day worker was reduced from 4.28 in 1905 to 2.96 in 1910.⁸ Assuming a wage of \$2.00 per day, this represents a saving during the year 1910 of \$9,922 for the working force of the plant, and of \$2.64 for each 300-day worker. In two plants having extreme conditions as to safety systems, there was, during 1910, a difference of 6.1 days per 300-day worker in favor of the plant with a well developed system, representing

⁸ *Report on the Iron and Steel Industry*, Vol. IV., p. 57.

a wage saving of \$12.20. In Wisconsin safety work has resulted in large reductions in the number of days lost⁹ and it is probable that, were figures available, the same results would be evident in other states.¹⁰

The Massachusetts Industrial Accident Board has published a study¹¹ showing the results of a campaign to secure the installation of safety devices and organizations. These figures may be slightly inaccurate owing to the fact that, during the second of the periods considered, the assumption was made that there had been no change in the number of employees in the various plants. Even with this qualification, the study is extremely valuable and the results may be considered as approximately correct. Data were first collected for the six-months' period ending December 31, 1913, from factories employing a total of over 55,000 men. During the succeeding six months inspections of the factories were made and, on the basis of the inspections and an analysis of the data, recommendations were made for improvement, and employers were urged to adopt effective means for promoting safety. As a measure of the success of the campaign figures were again collected for the six months ending December 31, 1914, and these were compared with the corresponding data for the preced-

⁹ See "Organized Accident Prevention," by C. W. Price.

¹⁰ The figures given in this paragraph have reference only to the loss of time occasioned by non-fatal accidents. The reduction in loss through death, computed on a basis of working-life expectancy, would add greatly to their significance but the necessary information is not available.

¹¹ Massachusetts Industrial Accident Board, *Bulletin No. 13*, October, 1915.

ing year. This comparison gave the following results: ¹²

REDUCTIONS IN ACCIDENT FREQUENCY AND GRAVITY

	%
Reported accidents.....	20.8
Disability cases.....	20.3
Days lost.....	36.8
Wage loss.....	36.0
Compensation cases.....	28.6
Compensation days.....	44.2
Compensation paid.....	41.1

A reported accident is one for which a notice of injury was sent in by the employer, it being required that all accidents, however slight, be reported to the Board. "A disability case is one in which there was disability on any day or shift other than the one on which the injury occurred," and a day lost is any such other day. The wage loss is secured from the accident reports. A compensation case is one on account of which payments were made under the compensation act for total disability, the act providing that compensation shall be paid after the first two weeks of disability only. A compensation day is one for which payment was made and the item of "compensation paid" represents the actual amount received for cases of total disability.

Net Saving.—So far only gross saving has been considered, but to analyze the situation accurately the *net saving* should be determined, for accident preven-

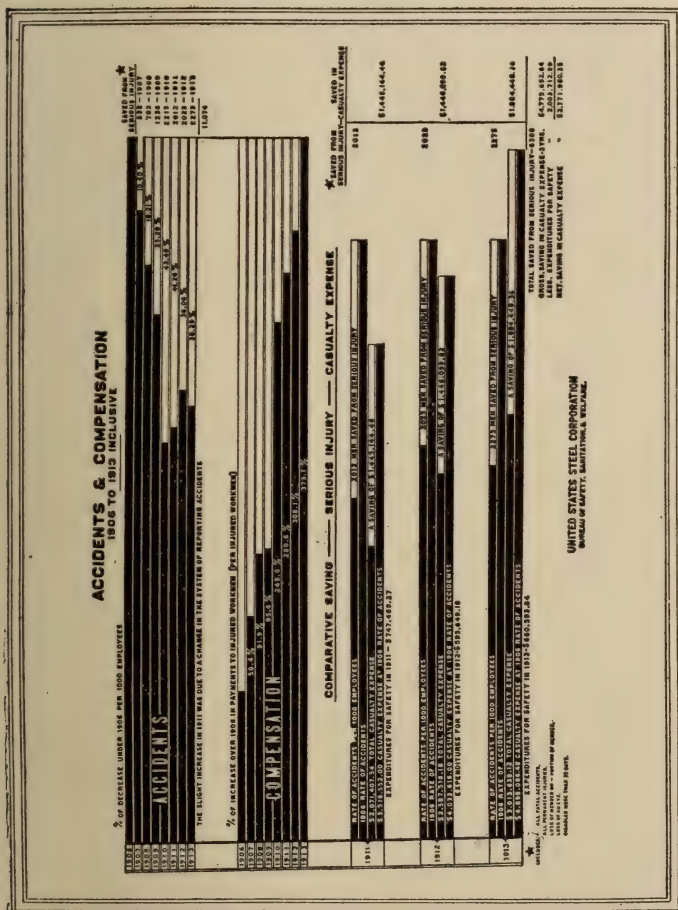
¹² *Ibid*, p. 15.

tion involves large expenditures and its results should be judged in comparison with the cost of obtaining them. Such a judgment must be based on a broad interpretation of the terms "results" and "costs," for they include some items which cannot be numerically expressed and others the value of which is not readily ascertainable. For example, suffering cannot be expressed in figures nor is the value of a decrease in friction and labor troubles easily computed. Another difficulty in making an accurate judgment at present arises from lack of experience and incompleteness of data. In the greater number of plants accident prevention is a development of the last two or three years and in few have trustworthy records been kept even for that length of time. In only one published report has it been possible to find a statement of the money saving as compared with expenditures for accident prevention. The United States Steel Corporation reports a gross saving in casualty expense for serious injuries of \$4,775,692.64 during the years 1911, 1912 and 1913. The expenditures for safety which produced this saving amounted to \$2,003,712.29, leaving a net saving of \$2,771,980.35.¹³

Such figures indicate very definitely that the prevention of accidents may result in financial saving to the employer and it is the opinion of most employers who have adopted active safety measures that a net saving is actually produced. The statements that "safety work is indispensable to an efficient manufacturing organization" and that "in our opinion there is

¹³ U. S. Steel Corporation. Bureau of Safety, Sanitation & Welfare. *Bulletin No. 5*, Dec., 1914. See diagram, p. 35.

no question that all efforts towards 'safety first' are good business and produce profits" are examples of



this attitude. In addition, the fact that those corporations which have long had a reputation for "hard-

headed, practical business sense," are leading in safety work is evidence of its probable contribution to profits.

CONCLUSION

It has been shown that an immense number of industrial accidents which cause large losses to society and to particular classes of society occur every year, and that the burden of these losses falls most heavily on the working class, the group least able to bear it. Responsibility for the occurrence of a large share of these accidents has been definitely assigned to present methods of conducting industry. Further, it has been demonstrated that a considerable percentage of industrial accidents may be prevented by the adoption of thoroughly practicable safety measures. That the adoption of such measures results in a tremendous economic saving to society and to individuals is unquestioned; that this saving more than counterbalances the economic cost of prevention is almost certain. If the relief of suffering and privation is considered, all doubt of the desirability of active measures of prevention is removed.

But even the most thoroughgoing efforts to prevent industrial accidents have not succeeded in eliminating them entirely and their total elimination is inconceivable so long as the human being is a factor in industry. The greater part of our industries have not even reached this irreducible minimum, for many employers still regard safety work as a "socialistic fad" and effective compulsion is exercised in but few states. Accidents, preventable and unpreventable, happen every day and create a problem that demands solution.

For the problem of preventable accidents there is only one solution. For those which can not be prevented some means of compensation for economic loss should be provided.

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PART II

EMPLOYERS' LIABILITY AND WORKMEN'S
COMPENSATION

CHAPTER IV

THE LAW OF NEGLIGENCE AS APPLIED TO THE RELATION OF MASTER AND SERVANT

The Law of Negligence.—The law of negligence is a branch of the common law and consists of a set of rules for determining the legal liability of one person to another for injuries caused by an unintentional neglect of duty. In any given case it is attempted to determine who is at fault (*i. e.*, guilty of negligence) and to assess damages upon the guilty party for the benefit of the person injured by the fault. Actionable negligence may be defined as follows: "Negligence, constituting a cause of civil action, is such an omission, by a responsible person, to use that degree of care, diligence and skill which it is his legal duty to use for the protection of another party from injury as, in a natural and continuous sequence, causes unintended damage to the latter."¹ An analysis of this definition reveals the essentials of a cause of action for negligence:

"Negligence consists in:

1. A legal duty to use care;
2. A breach of that duty;
3. The absence of distinct intention to produce the precise damage, if any, which actually follows.

¹ *Shearman and Redfield on the Law of Negligence*, § 3.

“With this negligence, in order to sustain a civil action, there must concur:

1. Damage to the plaintiff;
2. A natural and continuous sequence, uninterruptedly connecting the breach of duty with the damage, as cause and effect.”²

Before 1837 there were no cases on the liability of a master to his servant³ and the law of negligence was applied wholly as between the master and third parties to whom he was liable for injuries caused by his own negligence or by that of his servant.⁴ Blackstone, in his Commentaries, makes no mention of the master’s liability to his servant. The law of negligence was not applied to the internal affairs of an industrial group, probably for the reason that, in early times, such groups were on much the same basis as the family and regulation of the personal relations of the members was accomplished without appeal to the courts.

EMPLOYERS’ LIABILITY

Beginning with Lord Abinger’s decision in the case of *Priestly v. Fowler*,⁵ there has grown up a body

² *Shearman and Redfield on the Law of Negligence*, § 5.

³ The terms master and servant are used in law as synonymous with the ordinary usage of employer and employee.

⁴ “It is an old and thoroughly established doctrine that, where the relation of master and servant exists, the master is responsible to third persons for the damage caused by the wrongful acts or omissions of his servants, in the course of their employment as such.” *Shearman and Redfield, op. cit.*, § 141. This rule is known as the doctrine of *respondeat superior*.

⁵ 3 M. & W. 1 (1837).

of law defining the liability of an employer to his servant for personal injuries. The law of employers' liability follows the general principles of the law of negligence but has some features peculiar to itself.⁶ There are certain legal duties of protection which the master owes to his servant, to whom he is liable in damages for the injurious consequences of his neglect to use due care in the performance of such duties.⁷ These duties are: ⁸

1. To employ suitable fellow servants.

The master must "use reasonable care in selecting suitable and sufficient co-servants."

2. To establish and promulgate proper rules.

The nature of the rules required is determined by the character of the business—some employments requiring no rules. "Ordinary diligence" in establishing and enforcing rules is sufficient.

3. To provide a safe place to work.

"It is the master's duty to exercise reasonable care in furnishing those things which go to make up the plant and appliances, so as to have them at the outset reasonably safe

⁶ There is some dispute among authorities as to whether these features are a natural application of the established principles of the common law of negligence or are the result of the economic philosophy of the judges with respect to the peculiar relation of master and servant. For discussions from different points of view see Bohlen, "Voluntary Assumption of Risk," and Burdick, "Is Law the Expression of Class Selfishness?"

⁷ *V. supra*, analysis of definition of negligence, pp. 41, 42.

⁸ Burdick, *The Law of Torts*, pp. 184 ff.

for the work of the servants who are engaged in the general employment, and further, to exercise reasonable care, by means of inspection and repairs, when needed, to keep the plant and appliances reasonably safe.' ”⁹

4. To furnish safe appliances.¹⁰

5. To warn of danger.

The master must warn his servants and give them suitable instructions where he knows that the employment is dangerous or would discover it with due care, and where he has reason to believe that the servant does not know of the danger and would not discover it. The master's duty is to do “what a prudent master would naturally do.”

If the master has properly performed all of these duties he cannot be held liable for injuries to a servant arising “out of and in the course of his employment.” The test of performance in each instance is relative; there must be a reasonable compliance with the duty, taking into consideration the circumstances, the nature of the business, and the usual methods of conducting it. “*Reasonably safe* means safe according to the usages, habits, and ordinary risks of the business.’ ”¹¹ In no case is the master deemed to be

⁹ *Smith v. Erie Ry. Co.*, 67 N. J. L. 636, quoted by Burdick.

¹⁰ *V. supra*, under third duty of master.

¹¹ *Titus v. Bradford, etc., Ry.*, 136 Pa. 618, quoted by Burdick. Italics not in original.

a guarantor of the safety of his employees; his duty extends only to the exercise of proper diligence. These duties are, however, personal and the master can not relieve himself of responsibility for their performance by delegating them to another.

Proof of Liability.—The servant, in order to recover damages for a personal injury, has the burden of proof of two points: first, that the master failed to exercise due care in the performance of his duties; and second, that his failure was the proximate cause of the injury. To establish the first point it must be shown that one or more of the requirements of due care, as outlined above, has not been complied with; to establish the second, it is necessary to show that the absence of due care operated efficiently through an unbroken chain of events to produce the injury complained of.

In an action brought by a servant to recover damages for personal injury the master may avail himself of certain well-defined defenses. He may allege that the servant assumed the risk of his injury, that the injury was caused by the negligence of a fellow-servant, or that the plaintiff contributed negligently to its occurrence. The principles governing these defenses have been embodied in three legal doctrines; the doctrine of assumption of risk, the doctrine of common employment, and the doctrine of contributory negligence.

Assumption of Risk.—Under the doctrine of assumption of risk it is held that a master is not liable to his servant for injuries resulting from the ordinary risks of employment of which the servant is fully

aware. "The general rule, resulting from considerations as well of justice as of policy, is, that he who engages in the employment of another for the performance of specified duties and services, for compensation, takes upon himself the natural and ordinary risks and perils incident to the performance of such services. . . ." ¹² While the principle of this doctrine is not peculiar to the relation of master and servant, it is most frequently used in actions involving that relation, and some courts have held that assumption of the risks of employment is an implied term of the contract of service. In certain states the doctrine has been applied to relieve the master of liability arising from actual negligence or from violation of statutes requiring the installation of safety devices where it could be shown that the servant had knowledge of the master's conduct. ¹³

Common Employment.—The doctrine of common employment or the "fellow-servant rule" relieves the employer of liability if he can show that the accident on account of which damages are sought was the result of negligence on the part of a fellow-servant of the injured employee. In its most extreme form it is applied to all servants working for the same master, regardless of the nature of their duties. The doctrine was suggested in the decision in *Priestly v. Fowler*, ¹⁴ an English case, but was first definitely stated in *Mur-*

¹² *Farwell v. B. & W. R. R. Corp.*, 38 Am. Decis. 339 (1842).

¹³ The master, however, is generally held liable for injuries arising from a defect which he has promised to remedy, for a reasonable time after the promise is made.

¹⁴ 3 M. & W. 1 (1837). The decision of the point at issue in this case did not involve the application of the fellow-servant rule.

*ray v. South Carolina Railroad Co.*¹⁵ in 1841. In this case a fireman brought suit for injuries caused by the negligence of an engineer who refused to alter the speed of the train, even after his attention had been called to an obstacle on the track which gave rise to the accident. In his opinion Justice Evans asserted that the plaintiff assumed the risk of the negligence of his fellow-servants and he was not allowed to recover damages. There was, however, a very strong dissenting opinion.

While the South Carolina decision stands first in point of time, the case of *Farwell v. Boston and Worcester Railroad Corporation*¹⁶ has become the leading case both in this country and in England. Chief Justice Shaw stated in his opinion that the rule that a master should be liable for the acts of his servants presupposed that the master and the person injured "stand to each other in the relation of strangers"—and that therefore Farwell, an engineer, could not recover on the ground that the corporation was responsible for the acts of a switch-tender by reason of whose negligence it was alleged he had been injured. If liability was to be proved it must be shown that there was a contract of indemnification, express or implied. But the court held that the assumption of the ordinary risks of the business by the servant was an implied term of the contract of employment, the compensation, "in legal presumption," being adjusted accordingly; and that the risk of a fellow-servant's negligence was an ordinary risk of the

¹⁵ 36 Am. Decisions 268.

¹⁶ 38 Am. Decis. 339.

employment. "We are not aware of any principle which should except the perils arising from the carelessness and negligence of those who are in the same employment. These are perils which the servant is as likely to know and against which he can as effectually guard, as the master. They are perils incident to the service, and which can be as distinctly foreseen and provided for in the rate of compensation as any others."

Whether this rule is an exception to the doctrine of *respondeat superior* or a perfectly natural and logical application of the doctrine of assumption of risk is a mooted point. It is sufficient to note that it is applied only to the relation of master and servant.

Contributory Negligence.—Under the older doctrine of the common law one who was injured by the negligence of another was nevertheless barred from the recovery of damages if he had, by his own negligence, in any way contributed to the occurrence of the injury. The present doctrine is less harsh, but contributory negligence will still bar recovery if it is a direct cause of the injury.

Burden of Proof.—In an action to recover damages from a master on account of injury the burden of proof is on the plaintiff to show:

1. That the master was negligent in the performance of his legal duties.
2. That the negligence of the master was the proximate cause of the injury.
3. If the injury was caused by the negligence of

another servant, that he was not a fellow-servant.

Provided the plaintiff has established the above points, in order to escape liability the burden of proof is on the defendant to show:

1. That the servant assumed the risk of the injury,
or
2. That the servant by his own negligence contributed to the occurrence of the injury.¹⁷

Death Limitation.—The common law doctrine that right of action for personal injury expires with the death of the person injured¹⁸ also operates to relieve the employer of liability.

Contracting Out.—It has been the practice of some employers to require their employees to sign a contract exempting them from all liability on account of personal injury, and such contracts have been sustained under the common law.

MODIFICATIONS OF THE COMMON LAW

The common law of employers' liability has been modified to a considerable extent, both by statute and by judicial interpretation. The doctrine of assumption of risk has been made inoperative in the case of injuries arising through the violation of safety stat-

¹⁷ While this is the rule in England, in the U. S. Supreme Court, and in the majority of the state courts, the courts of certain states place the burden of proof on the plaintiff to show an absence of contributory negligence. This is true of the courts of Conn., Ill., Ind., Ia., La., Me., Mass., Mich., Miss., N. Y. and N. C.

¹⁸ *Actio personalis moritur cum persona.*

utes by the employer,¹⁹ and the doctrine of comparative negligence, to the effect that damages shall be reduced in proportion to the negligence attributable to the employee, has, in some instances, replaced the ruling that contributory negligence is an absolute bar to recovery.²⁰ "Contracting out" has been prohibited in practically every state, and the death limitation has been removed to permit surviving relatives to recover damages for the death of an employee. The burden of proof has, in some states, been shifted so as to lay a heavier responsibility on the employer.

Modifications of the Fellow-servant Rule.—The doctrine of common employment has been modified to a great extent, both by limiting the definition of a fellow-servant and by depriving the employer entirely of this means of defense. In its extreme application the common law considers all employees of the same master to be fellow-servants. But many courts have used other tests than that of mere common employment to determine the status of a servant in relation to another who has been injured through his negligence. One test is based on the nature of the act performed—if the servant is "employed to perform an act, incident to any of the five classes of duties which the law imposes upon the master . . . he is, as to that act, a *vice-principal*"²¹—a true representative of his master—and his negligence is the master's negligence. If employed to do any other act, he is a mere servant, no matter what his rank, and for in-

¹⁹ *E. g.*, Ohio, Mass., Federal Employers' Liability Act.

²⁰ *E. g.*, Cal., Ga., Ore., Federal Employers' Liability Act.

²¹ Italics not in original.

juries resulting to fellow-servants from his misconduct, the master is not liable.”²² This test has been adopted by the Supreme Court of the United States and by most of the state courts. A second test is that of the rank or grade of employment of the servant through whose negligence the injury is caused—“‘where one servant is placed by his employer in a position of subordination to, and subject to the orders and control of another, and such inferior servant, without fault, and while in the discharge of his duties, is injured by the negligence of the *superior servant*,²³ the master is liable for such injury.’”²⁴ This rule, which originated in Ohio, has been accepted by the courts of several states,²⁵ while others have incorporated it in statutes.²⁶ A third test is provided by the different department, or consociation, rule. “Under this rule servants in different departments” or those “not brought into such personal relations that they may exercise an influence upon each other promotive of their mutual safety, are not fellow-servants.”²⁷ It has been adopted by the courts in seven states²⁸ and has been applied to railroads by statute in five.²⁹

Statutes have also been passed completely abrogat-

²² Burdick, *The Law of Torts*, p. 207.

²³ Italics not in original.

²⁴ *Berea Stove Co. v. Kraft*, 31 Ohio St., 287 (1877), quoted by Burdick.

²⁵ Ill., La., Neb., Tenn., Tex., Utah, and in a modified form, Ky.

²⁶ Ala., Mass., N. Y., N. J., Vt., Penn., and as to railroads, Miss., Mo., O., Ore., S. C., Utah, Va.

²⁷ *Bailey on Personal Injuries*, p. 1551.

²⁸ Ill., Ky., La., Mo., Neb., Utah, and as to railroads, Tenn.

²⁹ Miss., Mo., S. C., Utah, Va.

ing the fellow-servant rule³⁰ or abolishing it in certain industries.³¹ In general the various "fellow-servant statutes" may be classified under five heads:

1. Statutes entirely abolishing the defense of fellow-servants as to all employers and all employees.
2. Statutes entirely abolishing the defense of fellow-servants as to employees of railroads.
3. Statutes limiting the defense of fellow-servants as to employees generally.
4. Statutes limiting the defense of fellow-servants as to all corporations.
5. Statutes limiting the defense of fellow-servants as to employees of railroads.
6. Statutes merely declaratory of the common law rule. Most of such statutes have been repealed by later statutes.³²

HISTORICAL DEVELOPMENT

The first attempt to modify the common law of employers' liability by statutory enactment was made in England in 1880, when "The Employers' Liability Act" was passed by Parliament. This act provided for a modification of the fellow-servant rule and enabled the personal representatives of a deceased em-

³⁰ Cal. and Colo.

³¹ For a complete consideration of this point see Bailey, *op. cit.*, p. 1553 ff.

³² This classification is given in Bailey, *op. cit.*, pp. 1553-54. Volume II. of this work is wholly given over to the employer's defenses and their modification.

ployee to recover damages for death caused by negligence. The first statute to be passed in this country was enacted in Alabama in 1885 and was followed by the Massachusetts act of 1887. Both of these "employers' liability acts," as well as those of several other states, were modeled closely after the English statute. A majority of the states have now passed laws defining an employer's liability to his employee, practically all of which are in the nature of a limitation on the employer's defenses. A federal statute was enacted in 1908 to apply to inter-state railroads.

The law of employers' liability has developed in sympathy with the trend of law and opinion in other fields. When the first cases involving the relation of master and servant were decided the doctrines of individualism and *laissez faire* were widely accepted and the early decisions reflected the prevailing philosophy. To be sure, the rules laid down in employers' liability cases can be deduced from established principles of the general law of negligence but the rigidity of their application depends largely on the economic philosophy of the presiding judge. Reasoning from the principle of *respondeat superior*, it would seem that the master could be held liable for the consequences of acts of fellow-servants quite as logically as he was exempted from them under the assumption of risk doctrine. Speaking of the fellow-servant rule an eminent English jurist says, "The Courts, between 1830 and 1840, curtailed the extent of an employer's liability by grafting upon it an anomalous limitation. . . . It belonged to the era of individualism, and was sup-

ported by the economic theory, of dubious soundness, that when a person enters into any employment . . . the risks naturally incident to his work are taken into account in the calculation of his wages.”³³ That Chief Justice Shaw in the *Farwell* case did not base his decision wholly on grounds of strict legal logic is evident from his statement that “it is competent for courts of justice to regard considerations of policy and general convenience, and to draw from them such rules as will, in their practical application, best promote the safety and security of all parties concerned.” So in cases involving the doctrines of contributory negligence and assumption of risk the tests of the circumstances which shall justify their application are quite likely to be colored by the economic philosophy of the judges. It has already been pointed out that tests of varying severity have been applied under the fellow-servant rule to determine who shall be considered fellow-servants.

With changes in the organization and methods of industry the inadequacy of the philosophy of *laissez faire* and the injustice of the common law principles of employers’ liability became increasingly evident and there developed a desire to remove some of the limitations on the employee’s right of recovery. That this desire manifested itself largely in the form of statutes is probably due to the fact that legislative bodies are more responsive to public opinion than is the bench, and also because judges are loath to run counter to a well-established body of legal doctrine. It was nat-

³³ Dicey, “Law and Opinion in England,” p. 280.

ural that the fellow-servant rule, which gave rise to the greatest injustice, should first be attacked, and the early "employers' liability acts" had as their main purpose the placing of an injured servant in the same legal position as a stranger if the injury was caused under certain circumstances. These laws also removed the death limitation but limited the amount which might be recovered either by the injured servant or by his heirs.³⁴ These and succeeding statutes have attempted to equalize the advantages of employer and employee and have put into effect a philosophy which recognizes that individualism means exploitation and that the state must lay down positive rules to secure justice between master and servant.

The Federal Employers' Liability Act of 1908, modifying all of the old doctrines by which the employer sought to escape liability, is in marked contrast to the earlier statutes which attempted to remove only the most evident defects of the common law.

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CHAPTER V

CRITICISM OF THE SYSTEM OF EMPLOYERS' LIABILITY

The system of employers' liability proceeds on the theory that the economic loss occasioned by an industrial accident should be borne by the person injured unless he can show that some other person is directly responsible, through a negligent act or omission, for the occurrence of the accident. If such personal responsibility can be proved the guilty party is liable in damages which are supposed to compensate for the loss sustained because of the injury. This does not mean that the employee is considered to have been at fault in the event that he is unable to attach liability to another. Many accidents arise from the methods of carrying on a business, responsibility for which must be assigned to conditions rather than persons. The concept of *personal fault* which is at the basis of employers' liability prevents recovery for the results of accidents of this nature and the workman must bear the loss incurred. All of which is but one phase of the general philosophy of *laissez faire* which holds that men should bear the consequences of their own conduct and of the normal conditions in which they find themselves.

Liability on the part of an employer may be estab-

lished only by means of a suit at law. The courts, in determining the existence of fault as a basis for liability, are guided by the rules of negligence law and by the various statutes which have been passed in modification of these rules. It is, therefore, to be borne in mind that, in order to collect damages, an employee must prove *legal liability*, which may or may not coincide with one's ideas of moral liability and justice.

That dissatisfaction with the operation of the law of negligence in its extreme form has been widespread is evident from the universal enactment of statutes designed to extend the liability of employers and to facilitate recovery by workmen. Limitations have been removed, responsibility has been broadened, and a new body of law created. But even the continued attempts of law-makers over a period of nearly forty years have failed to produce a system of employers' liability which satisfactorily adjusts the distribution of economic loss. Such attempts, where they have not been defeated by the extremely conservative interpretation of the courts, have resulted only in removing some of the more striking defects of the system.

A criticism of the practical operation of employers' liability should seek to determine to what extent it accomplishes its fundamental purpose, the solution of the problem created by industrial accidents. In so far as that purpose is not completely accomplished the system is defective and it should be corrected or other means adopted to the same end. The employing and employed classes as well as society at large are concerned in its contribution.

The Employee's Criticism.—1. A large share of industrial accidents are entirely uncompensated and the economic loss resulting from them must be borne by the workman or his dependents. Figures collected by the New York Employers' Liability Commission show that, of 114 fatal industrial accidents occurring in Erie County during the years 1907 and 1908, 33.3% were entirely uncompensated; and of 67 fatal cases in the Borough of Manhattan during 1908, 26.9% were not compensated.¹ In Wisconsin no compensation was paid in 72 out of a total of 306 non-fatal cases, or 23.5%²

A study of conditions in Pittsburgh showed that no payment of compensation was made in 59 out of 235 cases of married men killed in industry, a percentage of 25.1.³

Nine insurance companies doing business in New York reported that payments were made to employees under policies assuming the employers' liability risk in only one case for every eight notices of accident.⁴ Investigations in other states have shown similar conditions to exist.

2. Where compensation is obtained it bears no true relation to economic need. The table on page 60 shows the complete results of the Erie County study mentioned above, the amount of compensation recovered being:

¹ *Report to the Legislature of the State of N. Y.*, 1910, p. 20.

² *Reports of the Bureau of Labor and Industrial Statistics*, V. 13, p. 54.

³ Eastman, "Work Accidents and the Law," p. 121.

⁴ *Report to the Legislature of the State of N. Y.*, 1910, p. 25.

	0 in 38 cases	} 81 out of 103, or 78.6% of closed cases.
\$100 or less in	9 "	
\$101 to \$500 in	34 "	
\$501 to \$2000 in	14 "	
Over \$2000 in	8 "	
Suit pending in	11 "	

Total 114 cases

Seventy-eight and six-tenths per cent of the families where decisions had been rendered received \$500 or less as the entire compensation to pay funeral expenses and replace the earnings of the workman. The Labor Department of New York investigated ten cases in which accidents had left the workmen in a totally helpless condition for the remainder of life; in one of these the suit was still pending and, in the other nine, three received nothing, while none of the six remaining received over \$500. The records of the Wayne Circuit Court of Michigan show that, of twenty-two men partially disabled for life, twelve received no compensation, while the remaining ten were awarded amounts varying from \$200 to \$5,750.⁵ In her study of accidents in the Pittsburgh district Miss Eastman found that "for the death of 53 per cent of the married men, and 65 per cent of the single men contributing to the support of others, no compensation above reasonable funeral expense was made; in the injury cases, 56 per cent of the married men, 66 per cent of the single contributing men, and 69 per cent of

⁵ *Report of the Employers' Liability and Workmen's Compensation Commission*, 1911.

the non-contributing men received nothing to make up for lost income.”⁶ After an extensive comparison of economic loss to workmen and receipts from employers the New York Commission says that their figures strengthen the conclusion “that the bulk of the accident loss is borne by the injured workmen and their families. They [the figures] emphasize also the fact that the results of the present law are arbitrary and unequal, that a few of the injured get large verdicts while many get nothing. Thus, in the temporary disability cases a comparison of totals shows that employers paid nearly one-third of the loss, but yet in 44 per cent of these cases they paid nothing. In permanent partial disability cases, payments from employers averaged one-third of the loss until return to work, and yet over one-third of these disabled men received nothing. In the 111 fatal cases compensation averages 17.1 per cent of the first three years’ loss, but nearly half of the dependents got nothing.”⁷

Commenting further, the same body says, “From our detailed investigation, borne out as it is by the results of similar studies in states where the same general law prevails, and strengthened by testimony given before us, we are brought to the conclusion that under our employers’ liability laws a large proportion (over 50 per cent) of the workmen injured by accidents of employment and the dependents of those killed get nothing or next to nothing, and that

⁶ “Work Accidents and the Law,” p. 127.

⁷ *Report to the Legislature of the State of New York, 1910, p. 23.*

only a very small proportion recover an amount that is in any way commensurate with their loss.”⁸

3. In order to recover damages it is necessary for the plaintiff to sacrifice a considerable portion of the gross amount in lawyer's fees and costs. The Labor Department of New York found that in 151 accident cases, 97 of which were settled directly between the parties, “the total amount of plaintiffs' fees and costs amounted to 22.7 per cent of the total gross receipts from employers.” The contingent fee system, under which a lawyer agrees to prosecute a case in return for a percentage of whatever damages he may recover, is a large factor in increasing legal costs. Agreements of this type are common in employers' liability cases since the workman is usually unable to employ an attorney on any other basis and since “ambulance chasers,” the crooks of the legal profession, actually solicit this kind of business.⁹ In New York the following results were obtained in an investigation of 51 cases.¹⁰

Size of Fee	No. of Cases
Less than 25 per cent in.....	14
25 per cent to 34.9 per cent in.....	16
35 per cent to 49.9 per cent in.....	7
50 per cent and over.....	14
Total	51

⁸ *Report to the Legislature of the State of New York, 1910, p. 26.*

⁹ The workman is, of course, at a great disadvantage in being obliged usually to employ an inferior attorney.

¹⁰ *Report to the Legislature of the State of New York, 1910, p. 31.*

And these conditions are in no way peculiar to New York.

4. Compensation is frequently received only after long delay spent in litigation. The courts are so overloaded with work that delays of two years in bringing cases to trial are not uncommon and when it becomes necessary to follow a case through a succession of appeals it may take eight years or more before a final verdict is reached. During all this time the workman or his dependents are receiving no compensation and may be undergoing additional expense for medical treatment or court costs.

The Employer's Criticism.—1. The employer has been forced by the system to pay out large sums of money for the defense of claims and in satisfaction of verdicts, much of which has failed to reach his injured men. If he employs an insurance company to fight claims a half or more of his premiums goes to pay the salaries of officers, the commissions of agents, and the expenses of conducting the insurance business. If he maintains a claim department of his own he must employ expert lawyers, bear the court costs in litigated cases, and satisfy claims which are compromised or in which an adverse verdict is rendered by the courts.

2. Friction between employer and employed often arises out of claims for damages whether or not they reach the stage of law-suits. The workman feels that he should get compensation for injuries incurred in the course of employment while the employer is inclined to think that any aid he may give is a matter of generosity rather than of duty. If the question

comes before the courts the friction is increased and the enforced expenditure creates actual antagonism. The New York Commission says: "That the present law, with its uncertain and uneven chances, promotes distrust and ill-will between employers and employees to a serious extent we are convinced from the testimony of both. In our public hearings and in the replies received to our inquiries this was a very frequent complaint."¹¹ That this situation results in lowered efficiency cannot be doubted.

Society's Criticism.—Since the aim of organized society is to promote the best interests of all the classes composing it, any system which operates to the disadvantage of a class is to some extent opposed to the purposes of society itself. Therefore society is concerned with the criticisms of the employer and of the employee and should seek to remove the conditions which give rise to them.¹² But there are other defects which do not concern these classes so intimately and which do affect society at large.

1. The cost of hearing negligence cases represents a very large share of the expense of maintaining the courts. Estimates vary in assigning anywhere from one-fifth to two-thirds of the time of the courts to this form of litigation.

2. Uncompensated or insufficiently compensated industrial accidents give rise to economic dependence

¹¹ *Report to the Legislature of the State of New York, 1910, p. 33.*

¹² This is particularly true of the economic waste involved in lawyer's fees and the maintenance of claim organizations which serve no constructive purpose.

and destitution, the burden of which is transferred to society through various forms of charitable relief.

3. Other less specific evils are the bad moral effect of enforced pauperization, and the misrepresentation and perjury induced by the desire to win law-suits.

Summary.—The defects of the system have been ably summarized as follows:—

“1. It is wasteful:

(a) The state expends a large amount in fruitless litigation.

(b) Employers spend a large amount, as the result of work-accidents, only a small part of which is actually paid in settlement of accident claims.

(c) The injured employees spend nearly half of what they get in settlements and damages to pay the costs of fighting for them.

“2. It is slow; recovery is long delayed, while the need is immediate.

“3. It fosters misunderstanding and bitterness between employer and employees.

“4. It encourages both parties to dishonest methods.”¹³

Other Attempts to Solve the Accident Problem.—Three other methods of solving the economic problem of industrial accidents have been tried; the encouragement of saving by the workman, industrial accident insurance, and corporate relief and pension schemes. None of these approaches a sufficient solution. Even

¹³ Eastman, “Work Accidents and the Law,” p. 206.

where a workman has the will to save, his earnings do not permit an adequate accumulation, and if they cease at an early age the difficulty is increased. Industrial accident insurance, sold to workingmen on the weekly or monthly payment plan is bought at an excessive cost, and rarely returns benefits commensurate with loss of income. The relief associations of certain corporations afford substantial help, but they are far from giving adequate compensation and acceptance of their benefits usually involves conditions highly disadvantageous to the employee. Besides, they are not always safe or permanent.

Conclusion.—Having viewed the problem arising from industrial accidents and the failure of the present system of employers' liability as a method of solution, the next logical step is to seek a real remedy. Can this be found in an amendment of the present system of law, in the extension of present voluntary methods, or must a new scheme be devised and substituted for the old one? The history of legislative and judicial attempts to mold the common law into an adequate remedy and the testimony of experts representing all interests point to the undeniable fact that the system of employers' liability is basically wrong and that any attempt at a solution which does not remove this fundamentally unsound body of doctrine will be abortive. The same is true of the various voluntary substitutes which have been tried. Thirty-two of our states,¹⁴ appreciating these facts, have discarded the old common law doctrines and have substi-

¹⁴ Dec. 1, 1916.

tuted the more just and practical scheme of Workmen's Compensation.

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CHAPTER VI

THE THEORY OF WORKMEN'S COMPENSATION

The problem of compensating workmen for loss resulting from industrial accidents is essentially social and economic; social, because it is a direct concern of organized society; economic, because the loss must be measured in terms of economic welfare and because the compensation should be proportioned to the loss so measured. It should be remembered that the legal problem is secondary although vital; it consists in expressing, in the form of legislation, the judgment of society. Such legislation lays down rules governing the method of compensation and empowers public officials to administer and interpret the law, but it is only a vehicle for the accomplishment of socio-economic purposes.

It is evident that the methods which have been used in the past and which are still in use in sixteen states have become increasingly unsatisfactory. The operation of the system of employers' liability has resulted in injustice to all classes and, with the development of industrial conditions, the injustice has been aggravated. Commencing with the Industrial Revolution in the early nineteenth century the conditions under which industry has been carried on have gradually changed and a need for some new method of compen-

sation has been created. This need has been brought about by changes in industrial relations and by the introduction of machinery. Alongside the industrial development there has grown up a new body of social thought demanding recognition of changed conditions and seeking some means of providing adequate and just compensation for workmen who suffer loss through industrial accidents.

Changes in Industrial Relations.—The change from the domestic system of industry to the factory system involved a complete reorganization of the personal factors in industry and created those labor problems which are due to the differentiation of employer and employed. It is natural that the law of master and servant should have developed *pari passu* with the factory system and with the increasing opposition of interests of the two great social classes. The feeling of opposition and the disputes and injustice which have arisen from it were inherent in the growth of a new method of conducting business, one in which the principals were not properly orientated. The change in industrial relations evolved in three different aspects:

1. Under the domestic system all work was done on a personal basis, the workman was a member of his employer's family and the employer was no more than a highly developed workman. It was quite possible for any artisan, having passed through the stages of apprentice and journeyman, to become a master himself. Socially all were on the same level and personal and industrial interests were mutual. In case of injury and sickness the master was expected to care

for the members alike of his industrial and of his family group. But the factory system demanded capital, usually more than any one man was prepared to furnish, and the modern corporation was created to satisfy the demand. The corporation consists of a group of men who furnish capital and whose chief interest is in the financial side of a business, the actual carrying on of technical processes usually being entrusted to a hired manager who, in turn, in a large undertaking, delegates his functions to assistant managers, superintendents, and foremen. Hence the personal element in industrial relations largely disappears—even personal acquaintance between master and man vanishes. With the personal element gone the mutual interest which prompted aid and care is also lost. The employer now looks on his business as a means of acquiring wealth and power and the workman seeks to secure the largest possible return from a minimum amount of labor. The manager's remuneration is based on his efficiency in returning profits to the employer and his interests naturally lead him to conduct the business at the lowest possible cost. Aid in any appreciable amount has, until very recently at least, usually been denied to injured workmen and their families unless forced by a decree of the court. Compensation for industrial accidents has been regarded as an unwarranted expense totally opposed to the interests of the employer, who was not conscious of any direct personal relationship with his employee.

2. Industrial relations have become not only impersonal but highly complicated. Division of labor has necessitated the creation of many departments in an

industry, each employing a group of laborers and each contributing a share of the work necessary to manufacture a finished product. The heads of departments are responsible to the superintendent of the plant, the superintendent to the manager, and the manager to the board of directors, which represents the stockholders. Besides those concerned directly with the finished product of the industry, there are other groups which have a relation to the plant as a whole, repair men, construction gangs, and men concerned with motive power and its transmission.

Such conditions are responsible in a high degree for rendering unsatisfactory a system of compensation based on employers' liability. Employers' liability is governed by the principle of personal fault and in order to establish the existence of fault it is necessary to prove that an injury was caused wholly and directly by a particular person. The complicated relationships of the modern factory system have rendered this practically impossible, since the cause of almost every accident is a complex of the actions or neglect of a great number of persons, principals and subordinates.

3. In order to bring productive organization to its highest efficiency it has been found necessary to integrate and consolidate industry and to arrange the units of a large corporation so that each will contribute its utmost to the final product. In this process organization as such has come to mean more to the success of an undertaking than any other feature. The importance of organization which has carried with it definite rules and plans has meant the still further repression of the individual and has minimized his con-

tribution to the final result. The individual has been lost in the mass and the removal of a workman and substitution of another is now a less significant occurrence than formerly.

Change from Handicraft to Machinery.—The prime factor in the establishment of the present industrial system was the introduction of machinery and the substitution of mechanical power for manual labor. This has had two general effects which bear directly on the problem of industrial accidents:

1. The risk of accident has become greater; positively, through the introduction of dangerous machinery and increased speed of operation, and negatively, through the lowered skill of the workman and the employment of untrained immigrant labor. The improvement of methods in the steel industry and the progress of invention have constantly enlarged and complicated machines, and every enlargement and complication has increased the danger to the operator. Superior organizations, improvements in mechanical arts, and the production of finer grades of construction materials have increased the speed at which machines have been operated and have rendered less deliberate the movements of attendants. The invention of machines to perform delicate technical processes formerly accomplished only through hand work has made possible the employment of a lower grade of laborers, at once less able and less careful. The inability of immigrant laborers to understand the English language has been another factor in increasing the probability of accident occurrence.

2. The use of machinery to perform the greater

part of work once done by hand has contributed with the development of organization to the repression of the individual. The workman in many industries acts merely as a feeder and attendant to the machine, the mechanism of which now accomplishes the larger and more technical part of the work. Good machines are more important than skilled workmen and they have absorbed much of the attention formerly given to selecting and caring for individual employees.

The Growth of Cities.—The growth of cities with large manufacturing populations should be noted in connection with industrial accidents, for it has aggravated the severity of the problem. Wages in cities seldom exceed the minimum necessary to sustain life, and preclude effective help being given an injured workman by others of his class, a condition obtaining to a much less degree in the country. If a man is not totally disabled he is usually able to scrape together a bare living himself in the country districts, but this is not true of the congested areas of large cities.

New Social Ideas.—Changes in industrial conditions have made old theories and methods of accident compensation largely nugatory in actual practice; at the same time new social ideas have gained currency which have resulted in an almost complete reversal of attitude on the part of economists, legislators, and even employers:

1. The generally accepted theory of the limitations on governmental action has undergone a considerable development. It is still agreed that the government should undertake only those tasks which can be more effectively accomplished by its agency and can not well

be left to individual initiative and responsibility. For long this was interpreted to cover only those affairs with which the government must concern itself in order to exist, such as the maintenance of order, the dispensation of justice and the carrying on of essential public works. Governmental interference with the affairs of the individual was not to extend beyond an unavoidable minimum. But now its function is of a more constructive nature, the actions of the individual are regulated to the end that greater social welfare may obtain and enterprises are undertaken by government which might be carried on, but less effectively, by individual initiative.

2. The development of the concept of liberty has been consonant with the change in governmental theory. The older and negative concept defined liberty as freedom from interference, the newer positive view recognizes that restraint and regulation may result in greater real freedom and wider privileges. In transportation, for example, regulation of common carriers has thoroughly substantiated this principle.

3. The elimination of waste through conservation of resources has its application to industrial accidents, for every workman lost through death or disability lowers the efficiency of the working force as a whole. Society has invested a certain portion of its resources in bringing men to the working age and social economy demands the fullest possible use of the productive capacity of each working unit.

4. In recent years there has been a considerably greater interest in the welfare of all classes from a humane point of view. The leisure class has to some

extent justified itself through the activities of some of its members who have become interested in social betterment and who have drawn attention to the suffering caused by industrial accidents. They have labored to improve industrial conditions by eliminating causes and securing remedial legislation.

5. The working class itself has done much toward accelerating investigation and improvement of conditions. It has organized and become educated both through its own efforts and through the aid of philanthropists and social scientists so that expressions of opinion on its part are something more than a forlorn cry for help. Education and organization carry with them a demand for recognition and a new kind of treatment, a demand for justice rather than mercy.

WORKMEN'S COMPENSATION

The application of modern social thought to the industrial accident problem and to the unsatisfactory conditions under the system of employers' liability resulted in the almost universal conviction that a radical change was necessary, that there must be nothing less than the elimination of the old system and the substitution of a basically new scheme. A complicating feature in the solution of the difficulty lay in the dual nature of the workman, who is both the means and the end of production. As a producer he is expected to make the greatest possible use of his productive capacity, as a consumer he is entitled to the greatest possible use of the product consistent with like enjoyment on the part of other members of society. The

balance must be struck in such a way as to reconcile these apparently inharmonious viewpoints.

The industrial world has quite generally agreed on the substitution of the principle of workmen's compensation for that of employers' liability and practically every European country and the majority of the states have adopted laws which, to a greater or less degree, apply the new principle.

Definition of Workmen's Compensation.—Workmen's Compensation is the indemnification of a workman or his dependents by an industry for any economic loss due to injuries suffered because of his connection with the particular industry.¹ The burden of cost of compensation is usually placed upon the employer as the representative of the industry.

Basis of Workmen's Compensation.—Workmen's Compensation is variously defended on grounds of expediency and justice. From either viewpoint a strong case may be established; when both are considered the argument is irresistible. The leading points urged in justification of the principle fall under four heads:

1. Industry is responsible for the occurrence of a large majority of industrial accidents;² therefore, industry should be compelled to bear any loss which may result.³ The provable majority is so large and the de-

¹ In actual practice, of course, the working class is not indemnified for the entire loss. Practical considerations make it necessary to modify the ideal in some degree.

² *V. supra*, pp. 10, 11.

³ The principal argument in support of workmen's compensation is based on the principle of fault but the old narrow interpretation recognizing only *personal* fault has been superseded.

termination of fault in the remaining cases is so difficult that expediency demands the extension of the principle to all accidents. Further, an industry which is not able to bear the loss occasioned by its accidents and which exists only by forcing others to bear the loss is parasitic and its expenses of production are not a true measure of cost.

2. Any workable scheme of compensation necessarily involves medical and surgical care of the injured and such care results in a net gain to individual industries and to society. Discarding of injured workmen is no more justifiable than a refusal to repair damaged machinery.

3. Society has accepted the idea that the needy should be cared for in all possible cases. Workmen's compensation is an application of this idea to a specific problem.⁴

4. The provision in workmen's compensation laws that an industry shall bear the burden of cost of its accidents does not mean that the burden will be ultimately borne by the employer as such. It does mean that the expense of producing any particular article will more accurately represent its real cost and that the selling price will be fixed accordingly. The loss from industrial accidents will be borne by the consumer of the commodity the production of which has

⁴ It should be recognized that compensation according to need is not justified by the argument that the industry is responsible for economic loss. For example, industry is responsible for the cutting off of a workman's wages through accidental death but is not responsible in proportion to the size of the man's family. Compensation for dependents in proportion to their number can be defended only on grounds of expediency.

occasioned it. If the inclusion of this item in the cost of production makes necessary such an increase that the selling price becomes prohibitive, it is proved that the continued existence of the industry is justified only on grounds which would warrant governmental aid.

Conclusion.—Workmen's compensation is only one aspect of the gradual systematizing of human affairs. In private business cost accounting has succeeded in allocating many expenses formerly regarded as general and incapable of being charged to specific accounts. By this process the cost of conducting each separate department of a business becomes known. Likewise the capacity of each department to produce income is more accurately known and its worth is computed by a comparison of income and expense.

So organized society may be regarded as a huge business of which the various industries are departments. A comparison of the social cost of maintaining an industry with the return in terms of social welfare should be made to determine its net worth, bearing in mind that the apparent costs and returns in terms of money are not a final measure of either side of the account. The enactment and operation of workmen's compensation laws enable a more accurate estimate of the cost of carrying on industry and are an aid to a more equitable judgment of its net social worth.

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